DIGITAL PROJECTION

USER MANUAL

INSTALLATION AND QUICK-START GUIDE
OPERATING GUIDE
CONNECTION GUIDE
REMOTE COMMUNICATIONS GUIDE

M-Vision Cine 320 Series

High Brightness Digital Video Projector
16:9 widescreen display

Rev D July 2014

114-618D

About This Document

A serial number is located on the back of the projector. Record it here:

Follow the instructions in this manual carefully to ensure safe and long-lasting use of the projector.

Keep this manual handy for future reference.

Symbols used in this manual

Many pages in this document have a dedicated area for notes. The information in that area is accompanied by the following symbols:

WARNING: this symbol indicates that there is a danger of physical injury to yourself and/or damage to the equipment unless the instructions are closely followed.

NOTE: this symbol indicates that there is some important information that you should read.

Product revision

Because we at Digital Projection continually strive to improve our products, we may change specifications and designs, and add new features without prior notice.

Legal notice

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M-Vision Cine 320 Series

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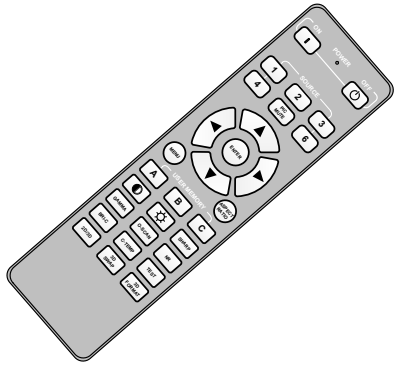
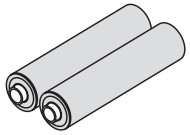
IN THIS GUIDE

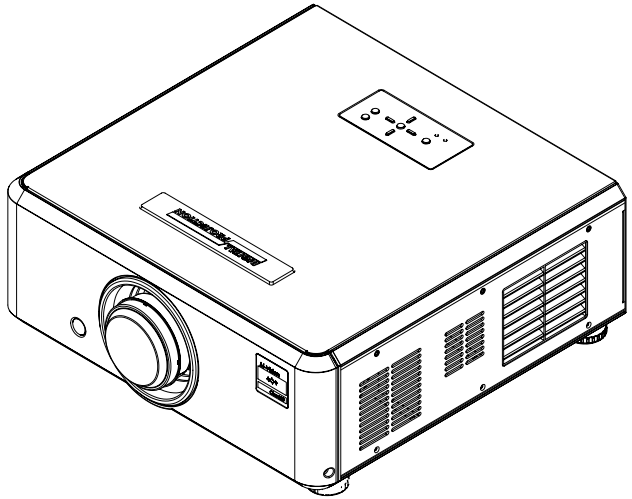
What's In The Box?



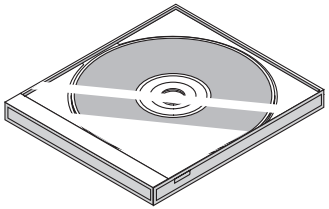
Remote control (112-961)



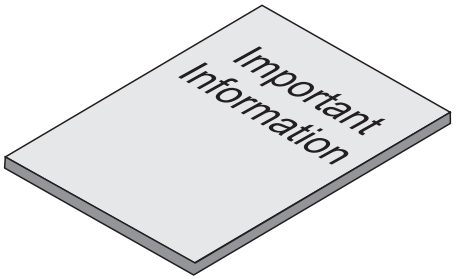
2x AAA batteries



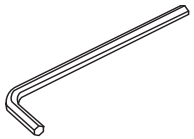
Projector



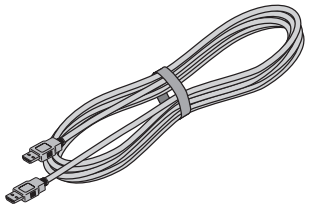
User Manual on disk (115-759)



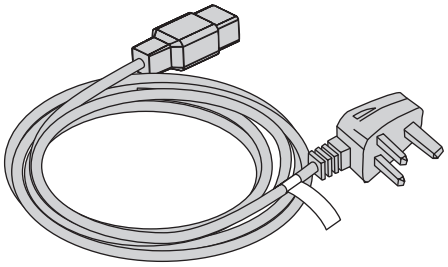
Important Information (110-287)



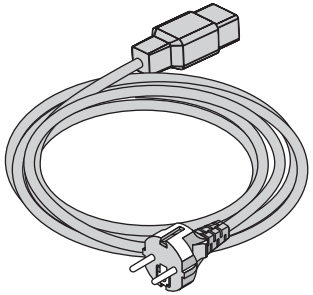
5mm Allen wrench



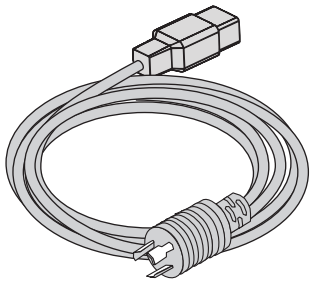
HDMI cable



Power cable, United Kingdom (102-180)



Power cable, Europe (102-163)



Power cable, North America (102-165)

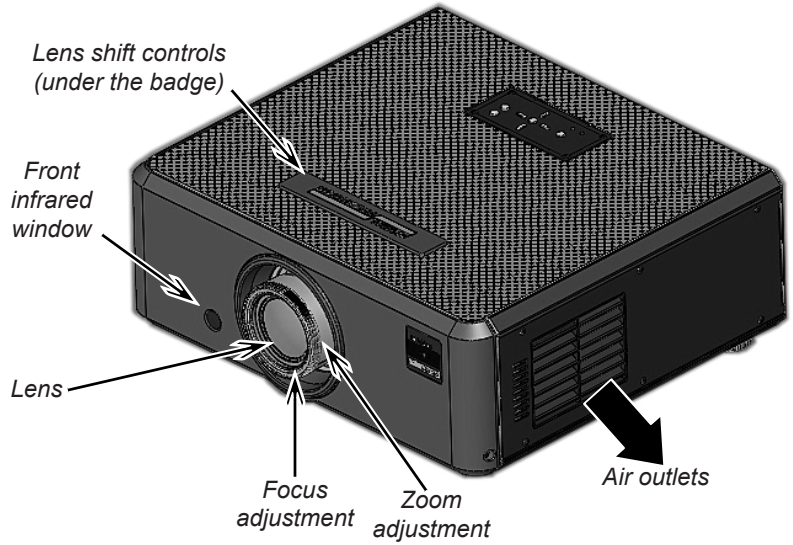
Notes

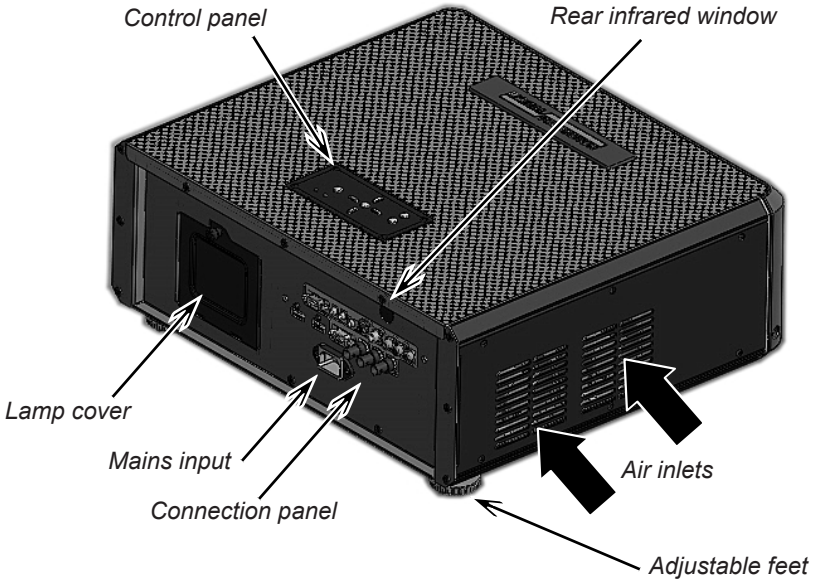
Make sure your box contains everything listed. If any pieces are missing, contact your dealer.

You should save the original box and packing materials, in case you ever need to ship your projector.

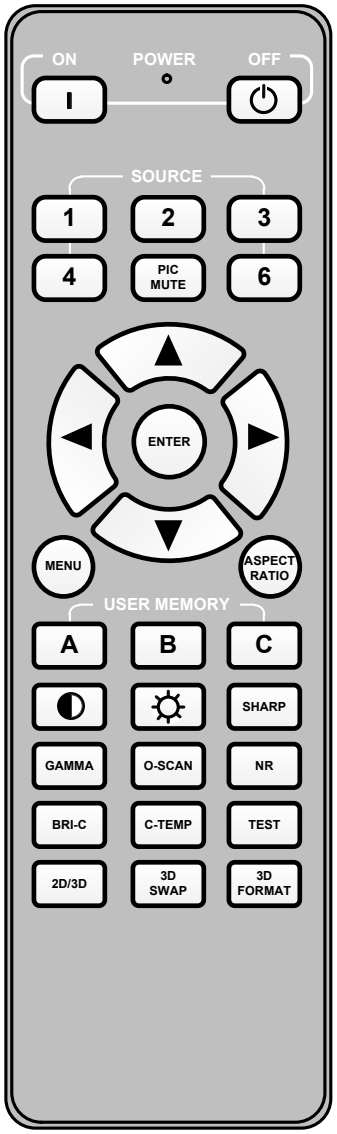
Projector Overview

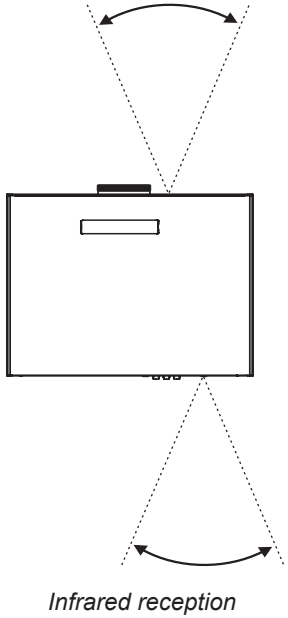
Front and rear views





Remote control





Infrared reception

Notes

The projector uses the standard M-Vision series infrared remote control.

Some of the controls are duplicated on the projector control panel, as shown on the next page.

*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

Control panel

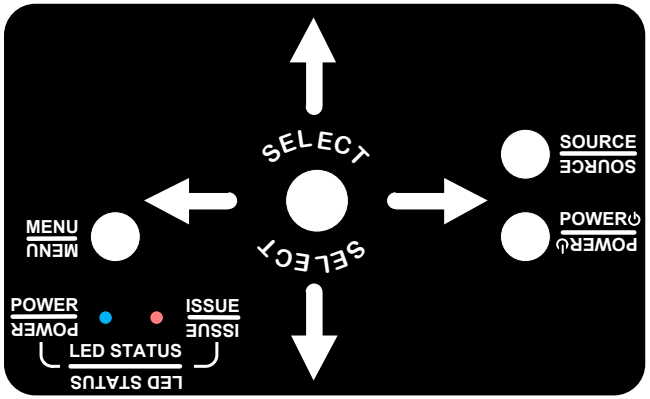
The projector control panel is designed to be read from the front or rear of the projector, for ease of use.

Buttons

- Arrows, **SELECT** and **MENU**
  Use these buttons to navigate the projector menus.
- **POWER**
  Press to switch the projector on, press again to switch to STANDBY mode.
- **SOURCE**
  Cycle through the inputs, in the following order:

  HDMI 1, HDMI 2, RGB, Composite 1, Composite 2, Video, S-Video, HDMI 1...

  The projector will automatically adjust to an active signal, and display it. Otherwise it will continue searching through the inputs until it finds a valid signal.



Notes

*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

Indicators

Power indicator (blue light)

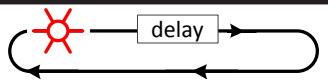
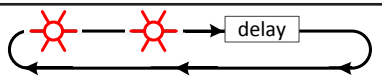
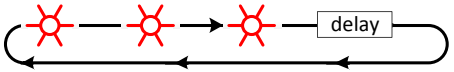
The blue Power indicator will light when the projector is in STANDBY mode, and will flash when the projector is cooling down or warming up, as shown in the chart below. It will be off when the projector is in normal running mode.

Condition	Power indicator behaviour (blue light)
Standby	On
Cooling / Warming up	Flashing
Power on (Normal)	Off

Error codes (red light)

If the projector detects an error, the red Issue indicator will flash as shown in the chart below.

For example, if the lamp door is left open, the red indicator will flash twice followed by a pause, then the sequence will repeat until the error condition is corrected.

Condition	Issue indicator behaviour (red light)
Lamp fail	Flashes once, then pauses, then repeats. 
Fan fail	Flashes twice, then pauses, then repeats. 
Over temperature	Flashes three times, then pauses, then repeats. 
System error	On. 

Notes

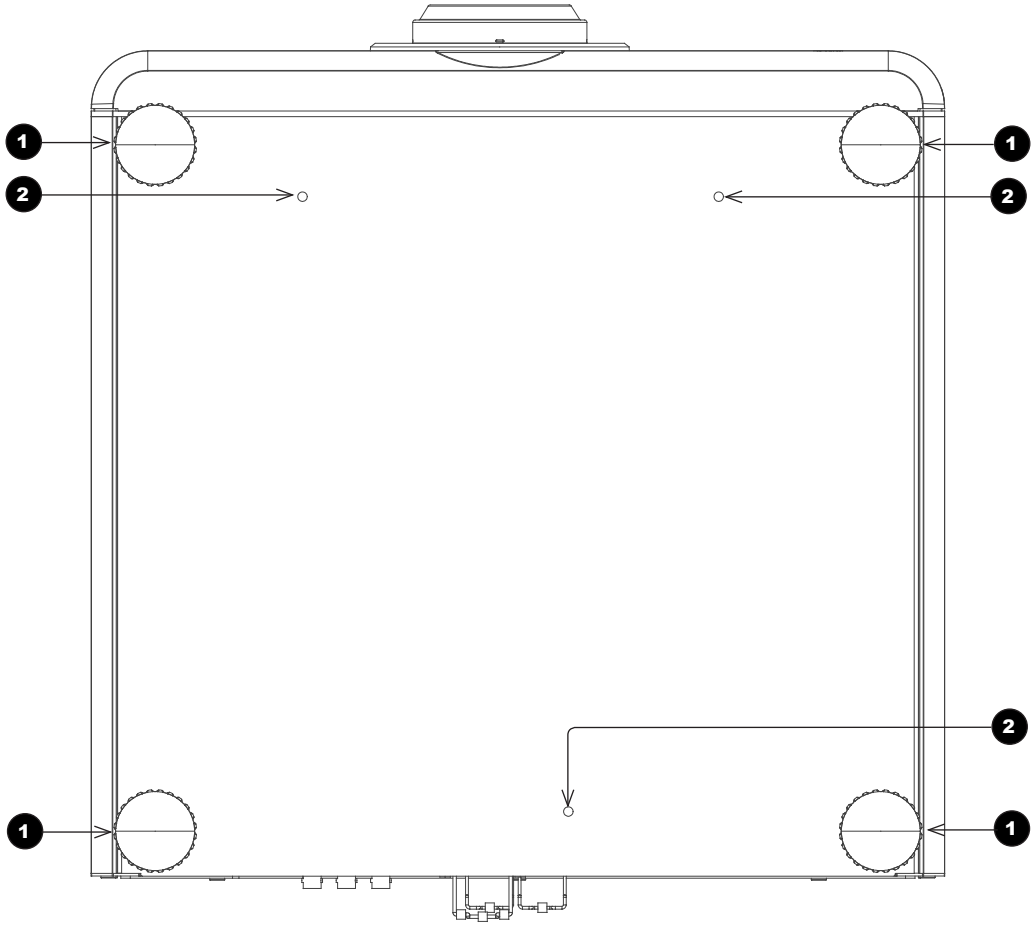
*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

Positioning The Screen And Projector

Consider the following:

- When installing the screen, ensure that it is in the best position for viewing by your audience.
- When positioning the projector, ensure that it is at a suitable distance from the screen for the image to fill the screen.
- Whether you are mounting the projector on the ceiling or standing it on its adjustable feet, ensure that it is level and perpendicular to the screen.

The drawing below shows the positions of the feet for table mounting, and the fixing holes for ceiling mounting.



1 **Four adjustable feet**

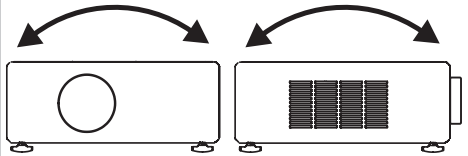
2 **Three M6 holes for ceiling mount**
The screws should not penetrate more than 15 mm into the body of the projector.

Notes

Ensure that there is at least 30cm (12in) of space between the ventilation outlets and any wall, and 10cm (4in) on all other sides.

Do not stack more than 3 projectors.

Do not tilt the projector more than ±12° from side to side when in use, as this may cause serious lamp failure, damage the lamp module and cause extra cost on replacement.



The projector may be tilted to one side and positioned in portrait mode as long as the exhaust outlet points upward.

When positioning the projector in portrait mode, ensure adequate airflow to the air inlet.

Changing The Lamp Module

1. Turn the power off and allow the lamp to cool for 5 minutes.
2. Unscrew the captive finger screw securing the lamp door, and remove the door ***(Fig. 1)***.

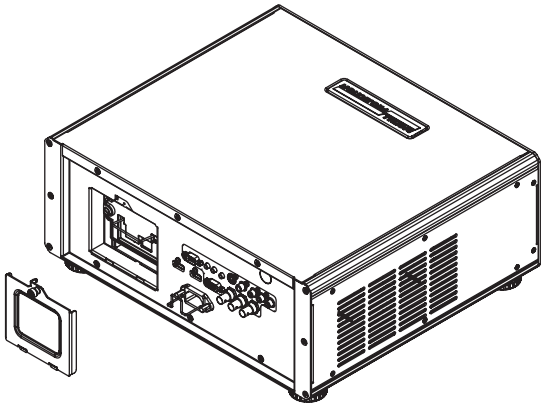


Fig. 1 Removing the lamp door

3. Unscrew the two cross-head screws securing the lamp module to the projector.
4. Lift the wire handle up and use it to pull out the lamp module ***(Fig. 2)***.

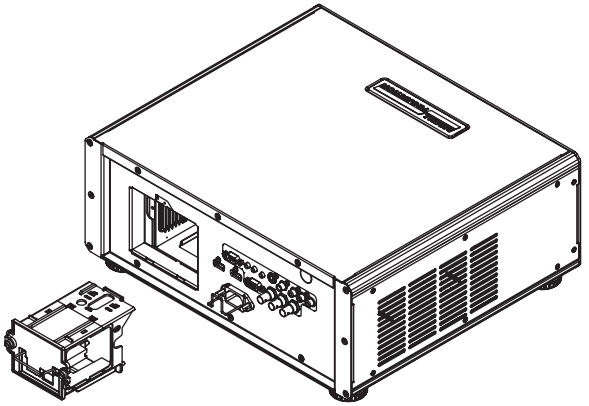


Fig. 2 Removing the lamp

5. Fit a new lamp module, pushing it firmly into place.
6. Tighten the two cross-head screws.
7. Locate the two lugs at the bottom of the lamp door into the slots, and re-fit the door. Tighten the finger screw.

Notes

Always allow the lamp to cool for 5 minutes before:
- disconnecting the power
- moving the projector
- changing the lamp

There are no user-serviceable parts inside the lamp module. The whole module should be replaced.

Use only lamps supplied by Digital Projection and intended for this projector. Fitting any other lamp could damage both projector and lamp, and will invalidate the warranty.

At the end of life, the lamp will not strike, and the **Issue** *indicator on the control panel will flash red. (Typical lamp life is 2000 hours)*

Do not use the lamp for more than 2000 hours, as this may cause serious lamp failure, damage the lamp module and cause extra cost on replacement.

Avoid touching the glass surface of the lamp module. If you do accidentally touch the glass, clean it before use.

HID lamps produce high intensity light. Do not look directly at the light coming from the lamp housing or the lens.

Opening the lamp door will switch the projector OFF. The projector cannot be operated until the door is fully closed.

Operating The Projector

Switching the projector on

1. Connect the power cable between the mains supply and the projector.
2. When the self-test has completed, the power indicator on the projector control panel shows blue to indicate that the projector is in STANDBY mode and the lamp is switched off. Press and hold for three seconds either of the following:
   - The **POWER** button on the control panel
   - The **ON** button [I] on the remote control

   The power indicator on the control panel flashes blue for a few seconds whilst the lamp comes up to full brightness. When the projector is fully switched on and ready for use, the power indicator switches off.

Switching the projector off

1. Press **POWER** on the control panel or the **POWER** button [⏻] on the remote control, then press the button again to confirm.

   The lamp will switch off, the power indicator on the control panel will start flashing in blue while the lamp cools down.
2. Wait until the power indicator shows steady blue to indicate it has stopped cooling off and is now in STANDBY mode. Disconnect the power cable.

Notes

*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

Even if the power indicator has stopped flashing, please allow the lamp to cool off for five minutes before:

- **disconnecting the power**
- **moving the projector**
- **changing the lamp**

Adjusting the lens

Zoom

Turn the smooth ring on the lens, closest to the case, to adjust the zoom so that the image fills the screen.

Focus

Turn the knurled ring at the outer end of the lens, to adjust the focus until the image is sharp.

Shift

1. To reveal the adjustment access holes ***(Fig. 1)***, rotate the Digital Projection badge on top of the projector.
2. Use the 5mm Allen wrench to adjust the horizontal and vertical position of the image..

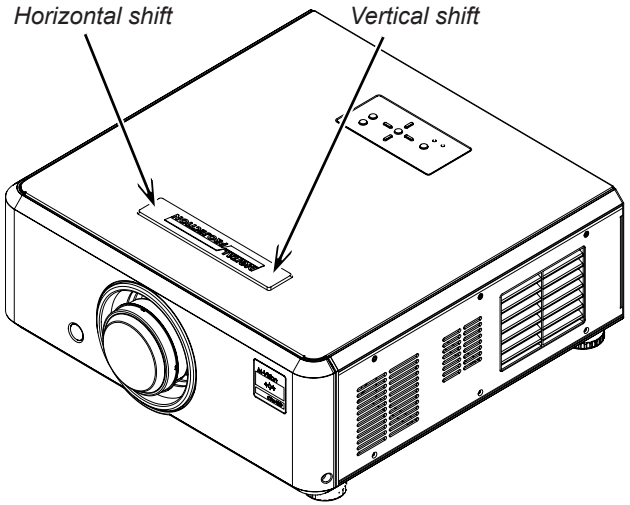


Fig. 1 Location of adjustment access holes (under the badge)

Notes

Do NOT prise off the badge using a tool.

Lens shift controls are not available on projectors fitted with the fixed 0.73:1 lens.

Selecting an input signal or test pattern

Input signal

Connect an image source to the projector. The signal should be automatically detected by the projector, and should be displayed within two or three seconds.

If more than one signal is connected, select the image you want to display in one of the following ways:

- Access the **Main** menu (either from the remote control or from the control panel) and then go to **Input Select**.
- On the remote control, select from the inputs using the number buttons 1 to 6
- On the control panel, press **SOURCE** to cycle through all the inputs.

Test pattern

To display a test pattern, do either of the following:

- Press the **TEST** button TEST on the remote control to cycle through all test patterns.
- Access the **Service** menu and select a test pattern.

Notes

*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

Adjusting the image

Orientation

To change the image orientation, access the **System** menu and adjust the **Rear Projection** and **Ceiling Mode** settings.

Aspect ratio

To set up an aspect ratio for your image, do either of the following:

- Press the **ASPECT RATIO** button (ASPECT RATIO) on the remote control to cycle through the available settings.
- Access the **Main** menu and then select the **Aspect Ratio** setting.

Picture

To change brightness and contrast, do either of the following:

- Press **BRIGHTNESS** ☼ or **CONTRAST** ◐ on the remote control, then use the arrow buttons to move the sliders.
- Access the **Image** menu and adjust the **Brightness** and **Contrast** settings.

Notes

*For full details of how to use the controls and the menu system, see the **Operating Guide**.*

DIGITAL PROJECTION

CONNECTION GUIDE

M-Vision Cine 320 Series

High Brightness Digital Video Projector
16:9 widescreen display

Rev D July 2014

IN THIS GUIDE

Signal Inputs

HDMI 1 and 2

HDCP-compliant digital video inputs from HDMI or DVI sources.

RGB

15 pin D-type VGA style input from personal computer

Component 1

RCA phono connectors for RGBS, (using Video input for sync) or YPbPr

Component 2

BNC connectors for YPbPr

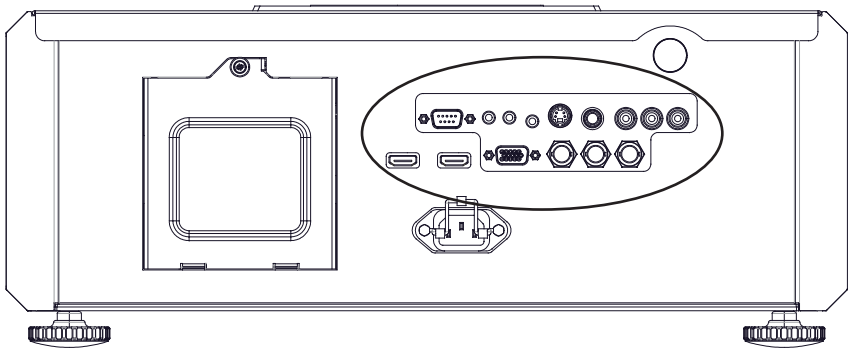
Video

RCA phono connector for composite video or used as sync input for Component 1

S-Video

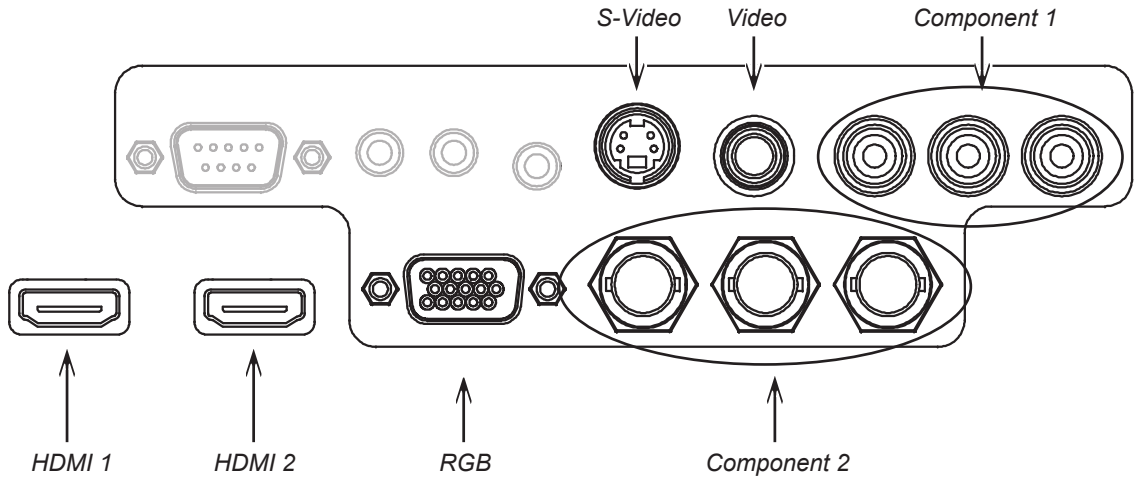
Standard 4 pin S-Video connector

.



Notes

For a complete listing of pin configurations for all signal and control connectors, see ***Wiring Details*** *later in this guide.*



Supported Signal Input Modes

Signal	Resolution	Frame Rate (Hz)	Component	VGA RGBHV	VGA YUV	HDMI RGB	HDMI YUV 8 bit	HDMI YUV 10 bit	HDMI YUV 12 bit	References
PC	640 x 480	59.94		✓		✓				VESA DMT
	640 x 480	74.99		✓		✓				VESA DMT
	640 x 480	85		✓		✓				VESA DMT
	800 x 600	60.32		✓		✓				VESA DMT
	800 x 600	75		✓		✓				VESA DMT
	800 x 600	85.06		✓		✓				VESA DMT
	848 x 480	47.95		✓		✓				VESA CVT
	848 x 480	59.94		✓		✓				VESA CVT
	1024 x 768	60		✓		✓				VESA DMT
	1024 x 768	75.03		✓		✓				VESA DMT
	1024 x 768	85.03		✓		✓				VESA DMT
	1024 x 768	70.1		✓		✓				VESA DMT
	1280 x 720	47.95		✓		✓				VESA GTF
	1280 x 768	60		✓		✓				VESA DMT
	1280 x 768	60		✓		✓				VESA DMT Reduced Blanking
	1280 x 768	75		✓		✓				VESA DMT
	1280 x 768	85		✓		✓				VESA DMT
	1280 x 800	50		✓		✓				VESA DMT
	1280 x 800	60		✓		✓				VESA DMT
	1280 x 800	75		✓		✓				VESA DMT
	1280 x 1024	60.02		✓		✓				VESA DMT
	1280 x 1024	75.02		✓		✓				VESA DMT
	1280 x 1024	85.02		✓		✓				VESA DMT
	1440 x 900	60		✓		✓				VESA DMT

Signal	Resolution	Frame Rate (Hz)	Component	VGA RGBHV	VGA YUV	HDMI RGB	HDMI YUV 8 bit	HDMI YUV 10 bit	HDMI YUV 12 bit	References
PC (cont.)	1440 x 900	75		✓		✓				VESA DMT
	1400 x 1050	60		✓		✓				VESA DMT
	1400 x 1050	75		✓		✓				VESA DMT
	1600 x 1200	60		✓		✓				VESA DMT
	1920 x 1080	47.95		✓		✓				VESA CVT
	1600 x 1200	60		✓		✓				VESA DMT
	1920 x 1200	60		✓		✓				VESA DMT Reduced Blanking
	1680 x 1050	59.94		✓		✓				VESA CVT
Apple Mac	640 x 480	66.59		✓		✓				VESA DMT
	832 x 624	74.54		✓		✓				VESA DMT
	480i	59.94	✓			✓				SMPTE 125M, CEA-861-D
	576i	50	✓			✓				ITU-R BT.601, CEA-861-D
EDTV	480p	59.94	✓	✓	✓	✓	✓	✓	✓	SMPTE 293M, CEA-861-D
	576p	50	✓	✓	✓	✓	✓	✓	✓	ITU-R BT.1358, CEA-861-D

Signal	Resolution	Frame Rate (Hz)	Component	VGA RGBHV	VGA YUV	HDMI RGB	HDMI YUV 8 bit	HDMI YUV 10 bit	HDMI YUV 12 bit	References
HDTV	720p	23.98								
	720p	24								
	720p	29.97								
	720p	30								
	720p	50	✓	✓	✓	✓	✓	✓	✓	SMPTE 296M, CEA-861-D
	720p	59.94								
	720p	60	✓	✓	✓	✓	✓	✓	✓	SMPTE 296M, CEA-861-D
	1080i	50	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080i (Aus)	50	✓	✓	✓	✓	✓	✓	✓	SMPTE 295M
	1080i	59.94	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080i	60	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	23.98	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	24	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	25	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	29.97	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	30	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	50	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	59.94	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D
	1080p	60	✓	✓	✓	✓	✓	✓	✓	SMPTE 274M, CEA-861-D

Control Connections

RS232

All of the projector's features can be controlled via a serial connection using the text strings described in the ***Remote Communications Guide***.

The RS232 connection can also be used to download the firmware updates issued from time to time by Digital Projection.

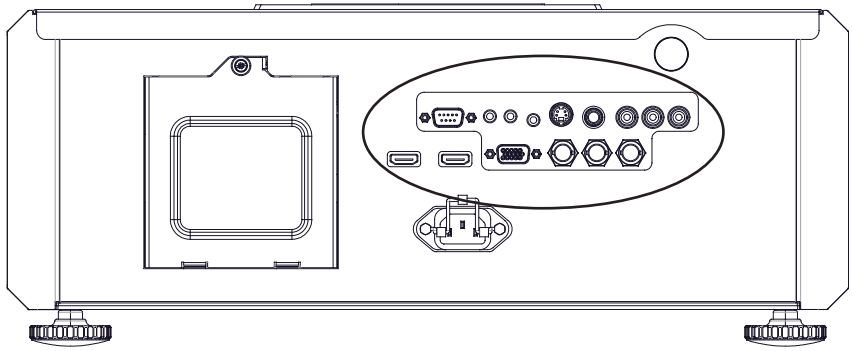
Wired remote control

You can connect a wired remote control to the projector via a 3.5mm jack. You can also use this socket to connect an external IR repeater if needed.

Trigger 1 and 2 outputs

The Trigger outputs are activated by one of the three following conditions, as set in the **Control** menu:

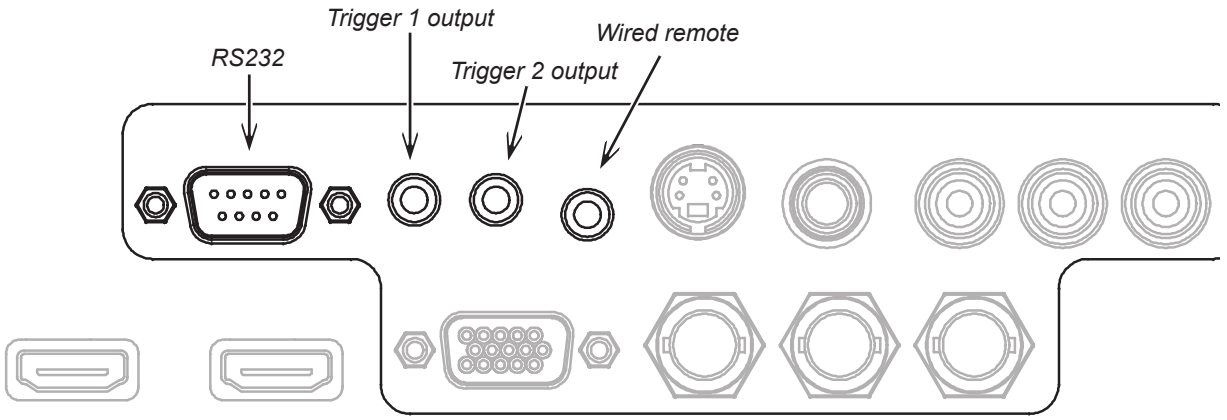
- Screen trigger: can be connected to an electrically operated screen, automatically deploying the screen when the projector starts up, and retracting the screen when the projector shuts down.
- Aspect ratio trigger: can be used to control screen shuttering for different aspect ratios.
- RS232 trigger: can be used to control the screen or screen shuttering on receipt of an RS232 command.



Notes

*For a complete listing of pin configurations for all signal and control connectors, see **Wiring Details** later in this guide.*

Plugging in the wired remote control disables the infrared.



Wiring Details

Signal inputs

Component 1

3 x RCA Phono connector

Component 1

Component 2

3 x 75 ohm BNC

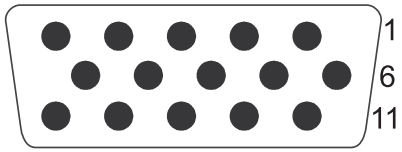
RGsB	YCbCr	YPbPr
R	Cr	Pr
G + Sync	G	Y
B	Cb	Pb

Component 2

RGB input

15 way D-type connector

1	R
2	G
3	B
4	unused
5	Digital Ground (H Sync)
6	R Ground
7	B Ground
8	G Ground
9	+5v
10	Digital Ground (V Sync/DDC)
11	unused
12	SDA
13	H Sync
14	V Sync
15	SCL



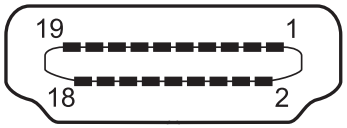
Pin view of female connector

Notes

HDMI inputs

19 way type A connector

1	TMDS Data 2+
2	TMDS Data 2 Shield
3	TMDS Data 2-
4	TMDS Data 1+
5	TMDS Data 1 Shield
6	TMDS Data 1-
7	TMDS Data 0+
8	TMDS Data 0 Shield
9	TMDS Data 0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	not connected
15	SCL (DDC Clock)
16	SCA (DDC Data)
17	DDC/CEC Ground
18	+5 V Power
19	Hot Plug Detect



Pin view of panel connector

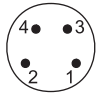
Notes

*For full details of all input settings, see the **Main menu** section in the **Operating Guide**.*

S-Video

4 pin mini-DIN

1	Y Ground
2	C Ground
3	Luminance (Y)
4	Chrominance (C)



pin view of female connector

Composite Video

RCA Phono

Notes

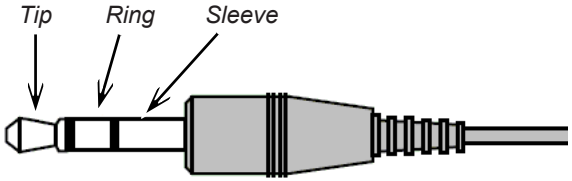
*For full details of all input settings, see the **Main menu** section in the **Operating Guide**.*

Control connections

Wired remote control connection

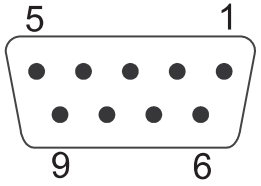
3.5mm mini jack

Tip	Signal
Ring	Not connected
Sleeve	Ground



Serial control input

1	unused
2	Received Data (RX)
3	Transmitted Data (TX)
4	unused
5	Signal Ground
6	unused
7	unused
8	unused
9	unused



Pin view of female connector

Straight-through cable

(used to connect the projector to a computer)

RX	2	---	2	TX
TX	3	---	3	RX
GND	5	---	5	GND

Serial port settings

Baud rate	38,400 bps
Data length	8 bits
Stop bits	one
Parity	none
Flow control	none

Notes

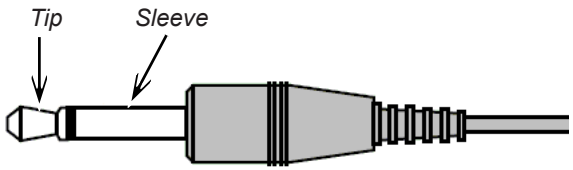
Plugging in the remote control cable disables the infrared.

Only one remote connection should be used at any one time.

Trigger 1 & 2 outputs

3.5 mm mini jack

Tip	Signal
Sleeve	Ground



Notes

DIGITAL PROJECTION

OPERATING GUIDE

M-Vision Cine 320 Series

High Brightness Digital Video Projector
16:9 widescreen display

Rev D July 2014

IN THIS GUIDE

ss

Using The Menus

The on-screen display (OSD) contains menus organised in five pages. The **menu page headings** are always visible at the top of the OSD ***(Fig. 1)***.

Access the menus using either the projector control panel ***(Fig. 2)*** or the remote control ***(Fig. 3)***.

On either device,

- press the **MENU** button.

Most menu items can be adjusted directly, but some items lead to a **submenu**.

Navigation

When you first open the OSD, the focus is on the page headings, allowing you to move from page to page. To access the currently opened page,

- Press either **ENTER** on the remote control, or **SELECT** on the control panel.
  These two buttons have identical functions. This guide refers to them as **ENTER**/**SELECT**.

Use the navigation keys on the remote control or the projector control panel:

- Press the **LEFT** and **RIGHT** arrow buttons to move from page to page, or to adjust the value of the highlighted item.
- Press the **UP** and **DOWN** arrow buttons to highlight a different item on the page.
- To open a submenu, press **ENTER**/**SELECT**.
- To close a submenu and go back to its parent menu, press **MENU**.
- To leave a page and return to the page headings, press **MENU**.

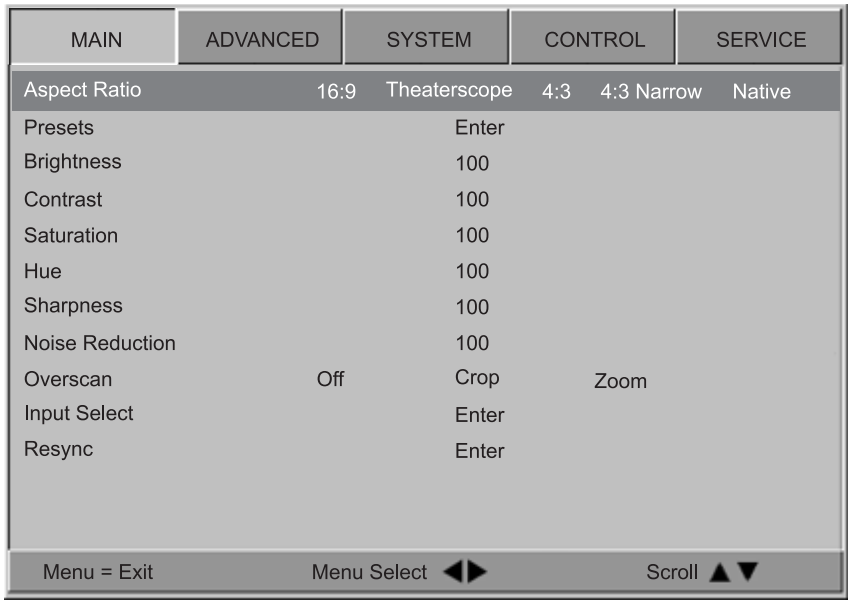


Fig. 1 On-screen display (OSD)

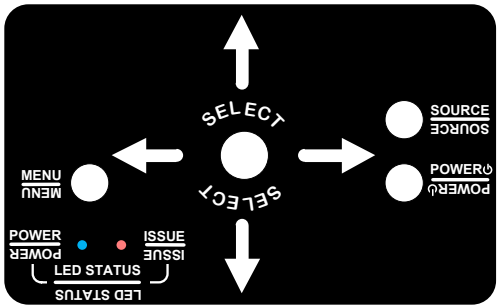


Fig. 2 Control panel

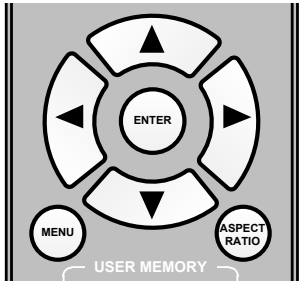


Fig 3 Navigation buttons on the remote control

Notes

The OSD will open on the most recently viewed page until the projector is switched off. When the OSD is opened for the first time, it will show the **Main** *menu.*

Editing projector settings

Most settings are changed by selecting from a list.

- Select from the list using the **LEFT** and **RIGHT** arrow buttons.

The change will be made immediately.

Some submenus mark the current selection with a **cross** ☒ ***(Fig. 1)***. To change the selection:

1. Use **UP** and **DOWN** to highlight the item you wish to select.
2. Press **ENTER/SELECT** to clear the current selection and select the highlighted item.

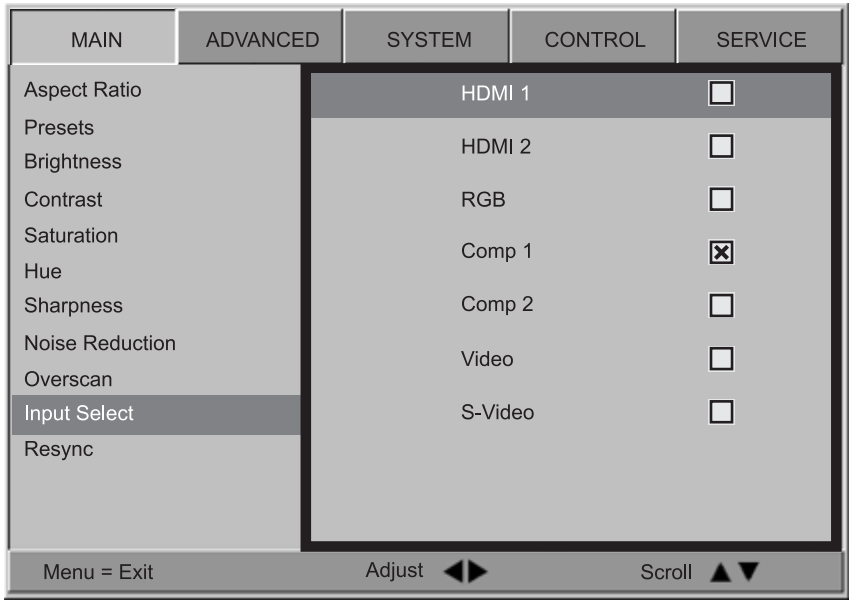


Fig. 1 Selection marked with a cross

Sliders

1. Activate a slider ***(Fig. 2)*** by pressing **LEFT** or **RIGHT**.
2. Adjust the value using the **LEFT** and **RIGHT** arrow buttons.
3. Accept the change and close the slider by pressing **MENU** or **ENTER/SELECT**.

Fig. 2 Slider

Commands

To execute a command,

- Highlight the command and then press **ENTER/SELECT**.

Sometimes you will be asked for confirmation ***(Fig. 3)***. Select **Yes** or **No** using the **LEFT** and **RIGHT** arrow buttons, then press **ENTER/SELECT** to confirm your choice.

Fig. 3 Confirmation dialog

Notes

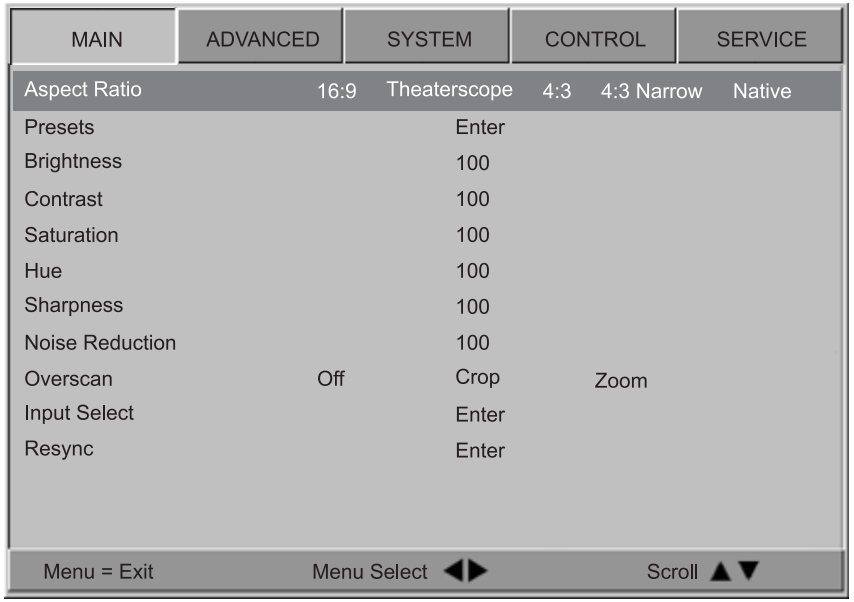
A Tour Of The Menus

Main menu

Aspect Ratio

- Use the **LEFT** and **RIGHT** arrow buttons to select from:

16:9	the image is scaled to fill the DMD (and thus, a 16:9 screen).
Theaterscope	the image is scaled such that a 2.35:1 image will be displayed at the correct aspect ratio when the projector is fitted with an anamorphic lens. Thus an image with an aspect ratio of 2.35:1 can be displayed using the full 16:9 resolution of the DMD.
4:3	the image is scaled to fit a 4:3 screen, using the full height of the DMD.
4:3 Narrow	to be used for 4:3 images in combination with an anamorphic lens. The image is scaled to fit the DMD vertically, but squeezed horizontally such that the lens will stretch it to the correct ratio.
Native	the image is displayed with no scaling, at its original resolution, in the centre of the screen.



Notes

Presets

The current image settings can be saved to a preset, which can later be recalled.

Use the **UP** and **DOWN** arrow buttons to select from:

- **Recall Presets**

  Select to recall **Preset A**, **B**, **C** or **D**, or select **Default** to recall the factory default settings.

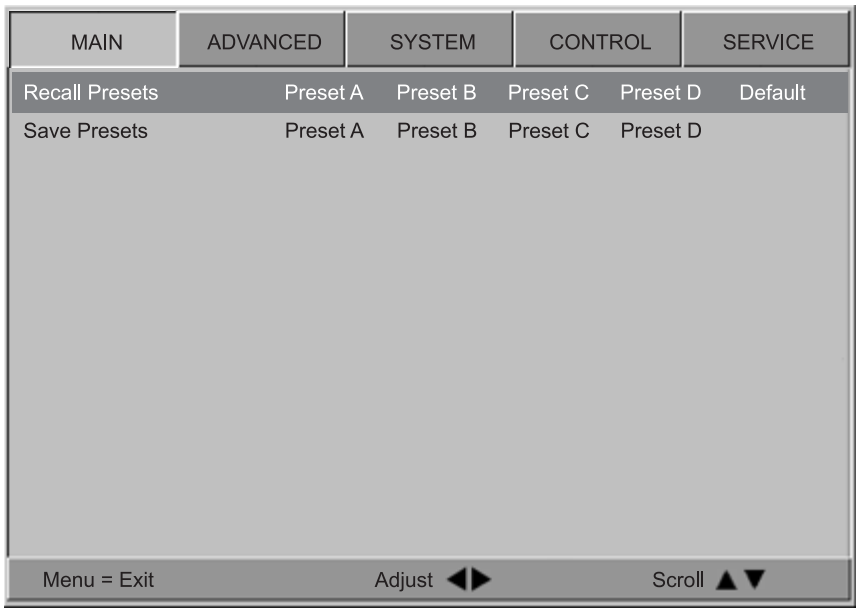
- **Save Presets**

  Save the current image settings to **Preset A**, **B**, **C** or **D**.

Settings for all seven inputs are saved in a preset.

The following settings are saved in a preset:

- **Brightness**
- **Contrast**
- **Saturation**
- **Hue**
- **Sharpness**
- **Noise Reduction**
- **Color Space**
- **Video Standard**
- **Gamma**
- **Colour Temperature**
- **Color Gamut**
- **Brilliant Color**
- **Adaptive Contrast**
- **RGB Offsets**
- **RGB Gains**



Notes

Brightness, Contrast, Saturation, Hue, Sharpness, Noise Reduction

These settings use a slider ***(Fig. 1)***.

To adjust any of these settings:

1. Highglight the setting you wish to select.
2. Press **LEFT** or **RIGHT** once to open the slider.
3. Use the **LEFT** and **RIGHT** arrow buttons to adjust the value from 0 to 200:
4. To return to the **Main** menu, press **MENU**.

Fig. 1 Brightness slider

Overscan

This setting, if switched on, removes unwanted artefacts from the edges of your image by cropping the edges or increasing the size of the image to force the edges off-screen.

Unwanted artefacts along the image edges usually occur when the projector is connected to a low quality input souce..

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Off**
- **Crop**
  Blanks a 3% border from the left and right edges of the image.
- **Zoom**
  Increases the horizontal and vertical resolution of the displayed image by 6%, so that the all four edges fall outside the screen area.

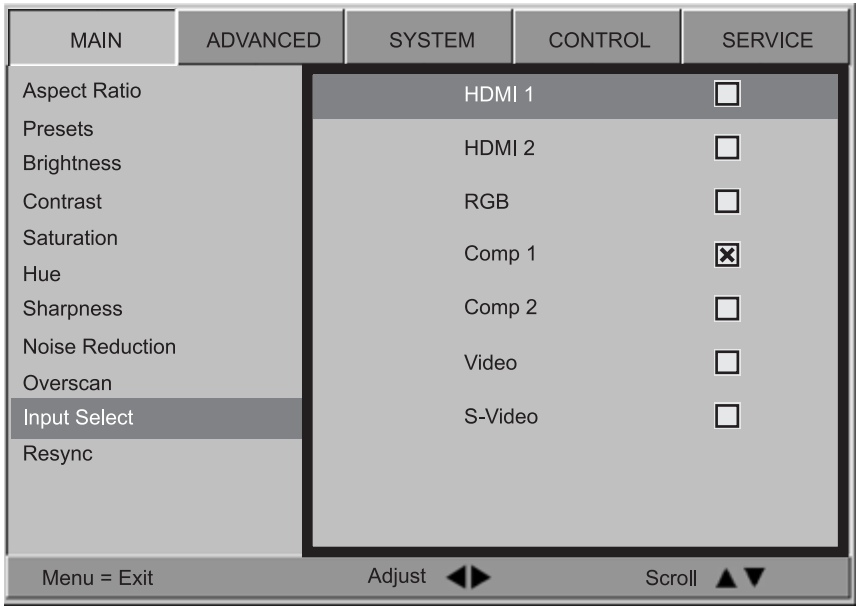
Notes

Decrease **Saturation** *if the colors appear too bright; increase it if the colors appear muted or washed out.*

Decrease **Hue** *to shift the hue toward red; increase it to shift the hue toward green.*

Input Select

1. Press **ENTER/SELECT** to open the **Input Select** submenu.
2. Use the **UP** and **DOWN** arrow buttons to highlight an input.
3. Press **ENTER/SELECT** to select the highlighted input.
4. To return to the **Main** menu, press **MENU**.



Resync

Press **ENTER/SELECT** to force the projector to resynchronize with the current input signal.

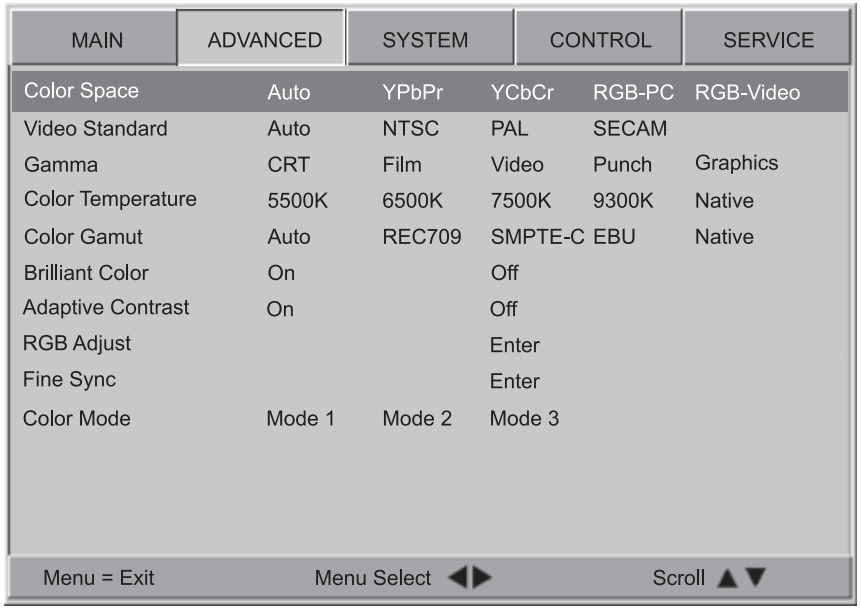
Notes

If you select an input that IS connected and active, the projector will automatically adjust to the parameters of the signal, and display it.

If you select an input that is NOT connected or active, the projector will continue searching through the input sources until it finds a valid signal, in this order.

HDMI 1, HDMI 2, RGB, Composite 1, Composite 2, Video, S-Video, HDMI 1...

Advanced menu



Color Space

In most cases, the **Auto** setting will determine the correct color space to use. If it does not, you can select the appropriate setting manually.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Auto**
- **YPbPr**
- **YCbCr**
- **RGB-PC**
- **RGB-Video**

Video Standard

In most cases, the **Auto** setting will determine the correct video standard to use. If it does not, you can select the appropriate setting manually.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Auto**
- **NTSC** used mainly in the United States and Japan
- **PAL** used in Europe, Australia and many other parts of the world, typically with a 50 Hz frame rate
- **SECAM** used mainly in France and Russia

Notes

To determine the correct color space, consult the user manual for the video source.

Gamma

Used correctly, the **Gamma** setting can improve contrast while maintaining good details for blacks and whites.

If excess ambient light washes out the image and it is difficult to see details in dark areas, lower the **Gamma** setting to compensate. This improves contrast while maintaining good details for blacks. Conversely, if the image is washed out and unnatural, with excessive detail in black areas, increase the setting.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **CRT** gamma of 2.5
- **Film** gamma of 2.2
- **Video** similar to **Film** but improves the dark areas of the image - especially suitable for images from video cameras
- **Punch** enhanced brightness and increased color saturation for high ambient light environments
- **Graphics** enhanced highlights and contrast, especially suitable for computer presentations

Color Temperature

In general, a higher color temperature gives a cooler feeling to the image, and a lower temperature gives a warmer feeling. Set to **Native** to use the image without correction.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **5500K**
- **6500K**
- **7500K**
- **9300K**
- **Native**

Color Gamut

In most cases, the **Auto** setting will determine the correct color gamut to use. If it does not, you can select the appropriate setting manually.

Each setting defines the precise hue of each primary (red, green and blue) and secondary (yellow, cyan and magenta) color component used to generate the image.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Auto**
- **SMPTE-C** for NTSC, 480i and 480p sources
- **EBU** for PAL, SECAM, 576i and 576p sources
- **REC709** for most other sources
- **Native** uncorrected

Notes

Brilliant Color®

Brilliant Color® allows for increased projector brightness at the expense of accurate color reproduction.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** (recommended)
- **Off**

Adaptive Contrast

Adaptive Contrast expands the light and dark portions of the contrast curve of the image, depending on the mean luminance of the image.

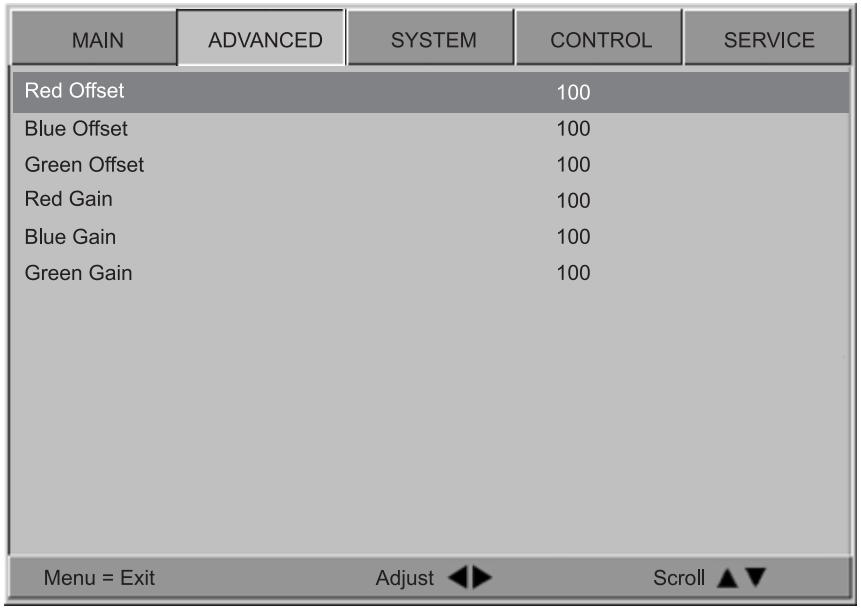
Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On**
- **Off**

RGB Adjust

1. Press **ENTER/SELECT** to open the **RGB Adjust** submenu.
2. Use the **UP** and **DOWN** arrow buttons to highlight a setting, then adjust the setting with the **LEFT** and **RIGHT** arrow buttons.

   The **Gain** controls correct color imbalances in the bright areas of the image. The **Offset** controls correct color imbalances in the dark areas of the image.
3. To return to the **Advanced** menu, press **MENU**.



Notes

In most cases, **Brilliant Color** *should be left* **On** *– switching it off will result in reduced brilliance and contrast.*

Setting **Adaptive Contrast** *to* **On** *will affect any image quality settings made in other menus.*

A good way to carry out this adjustment is to use the chequerboard test pattern.

Fine Sync

1. Press **ENTER/SELECT** to open the **Fine Sync** submenu.
2. Use the **UP** and **DOWN** arrow buttons to highlight a setting, then adjust the setting with the **LEFT** and **RIGHT** arrow buttons:

   V Position adjusts the vertical position of the image.

   H Position adjusts the horizontal position of the image.

   Phase adjusts the phase of the pixel sampling clock relative to the incoming signal.

   Adjust the phase when an RGB or Component image still shows shimmer or noise after the tracking has been optimized.

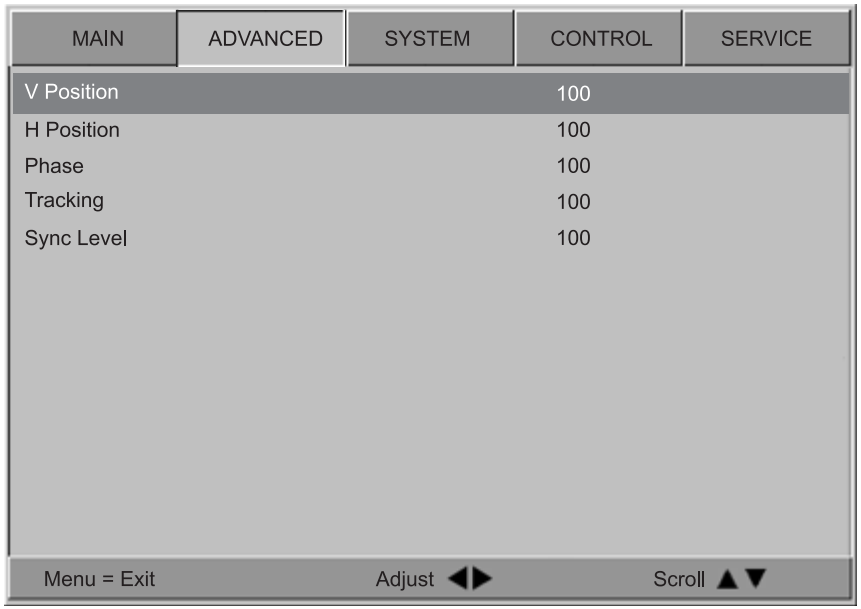
   Tracking adjusts the frequency of the pixel sampling clock, so that all pixels generated by the video source are sampled.

   Steady flickering or several soft vertical stripes or bands across the entire image indicate poor pixel tracking.

   Sync Level adjusts the voltage level of the projector's sync signal detection circuitry.

   Sync Level adjustment is occasionally necessary when a signal source signal drops "below black" (for example, during scenes with explosions or when subtitles are present) and causes the projector to temporarily lose sync.

3. To return to the **Advanced** menu, press **MENU**.



Notes

A good way to carry out **Tracking** *and* **Phase** *adjustments is to use the greyscale test pattern.*

Always adjust **Tracking** *before adjusting* **Phase**.

Color Mode

Color Mode adjusts the lamp driver waveform and color wheel programming according to the image requirements of the user.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

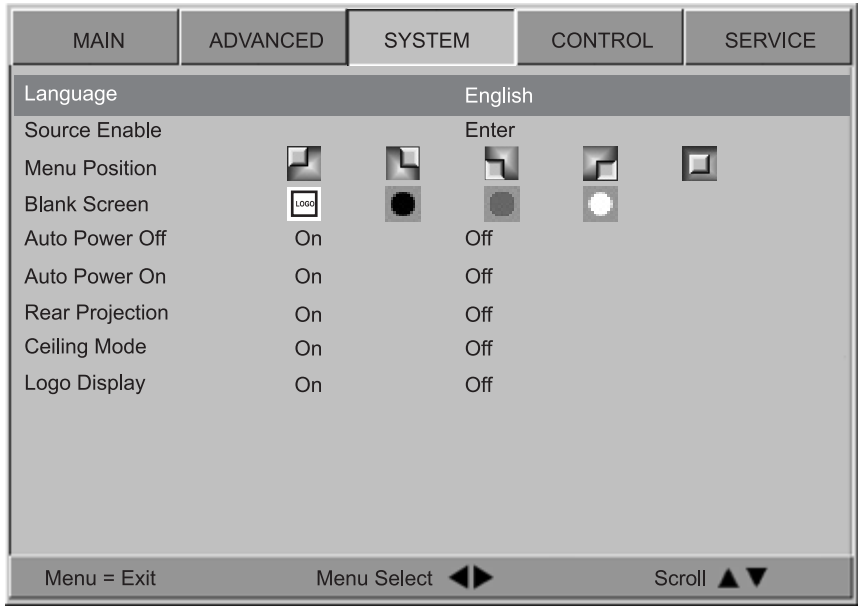
- **Mode 1** Maximum brightness mode.
  No color space adjustments or color temperature adjustments are possible.
- **Mode 2** 6500K color temperature, brightness optimised.
  Defaults to color temperature of 6500K, auto color space. Adjustments can be made.
- **Mode 3** 6500k color temperature, color rendition optimised.
  Defaults to 6500k, auto color space. Adjustments can be made.

Notes

System menu

Language

This product is available only in English at present.



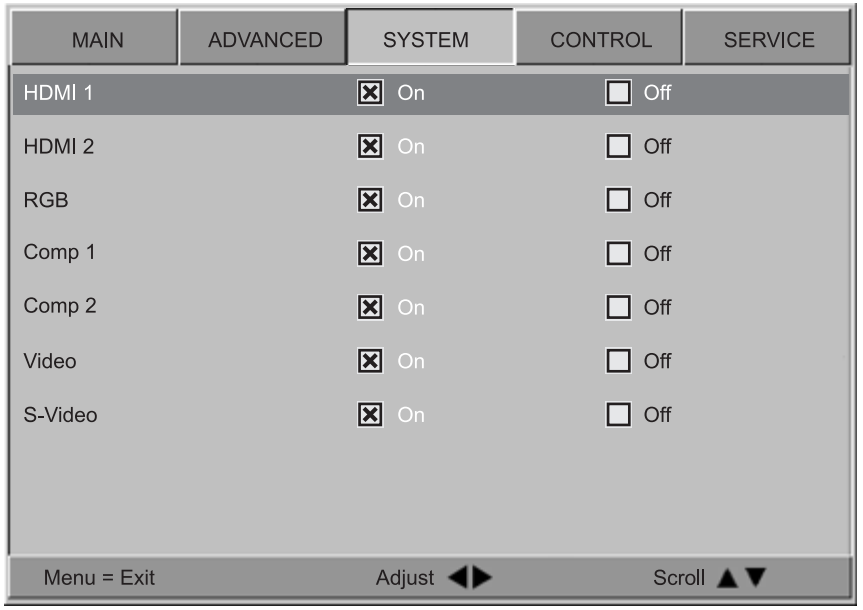
Source Enable

1. Press **ENTER/SELECT** to open the **Source Enable** submenu.
2. Use the **UP** and **DOWN** arrow buttons to highlight a source, then use the **LEFT** and **RIGHT** arrow buttons to switch between:

   On the selected source will be included in an automatic input source search

   Off the selected source will not be included in an automatic input source search

3. To return to the **System** menu, press **MENU**.



Notes

Menu Position

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Top left**
- **Top right**
- **Bottom left**
- **Bottom right**
- **Centre**

Blank Screen

This option determines what appears on screen when the projector is searching for a valid input source.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Digital Projection logo**
- **Black screen**
- **Blue screen**
- **White screen**

Auto Power On

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** When power is connected, the projector starts up immediately.
- **Off** When power is connected, the projector goes into STANDBY mode and does not start until switched on from the remote control or the control panel.

Auto Power Off

When the projector is searching for a valid input source, this option determines what appears on screen.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** The projector automatically goes into STANDBY mode if no input source is detected for 20 minutes.
- **Off** The projector stays switched on until switched off from the remote control or the control panel.

Notes

Rear Projection

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** The projected image is reversed, left to right.
- **Off**

Ceiling Mode

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** The projected image is reversed, top to bottom.
- **Off**

Logo Display

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **On** The Digital Projection logo is didplayed during power up.
- **Off**

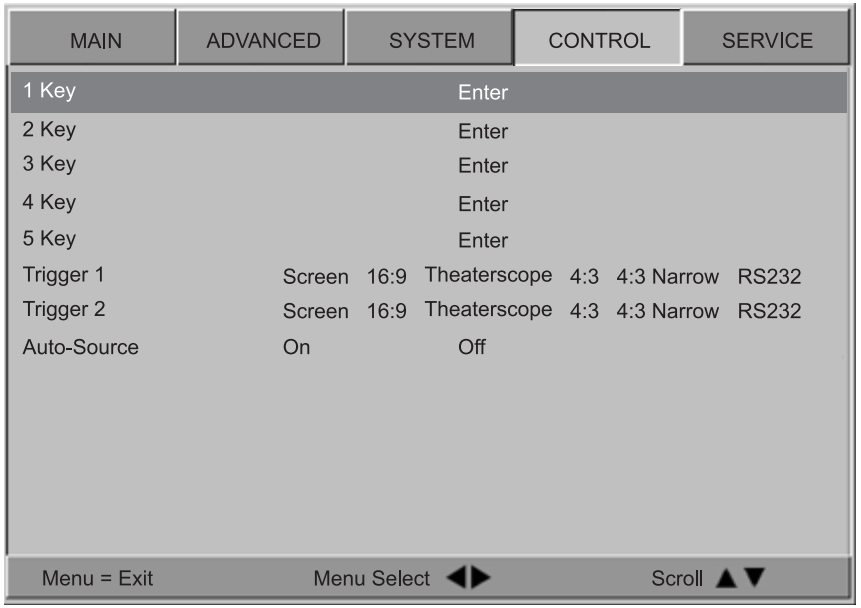
Notes

Control menu

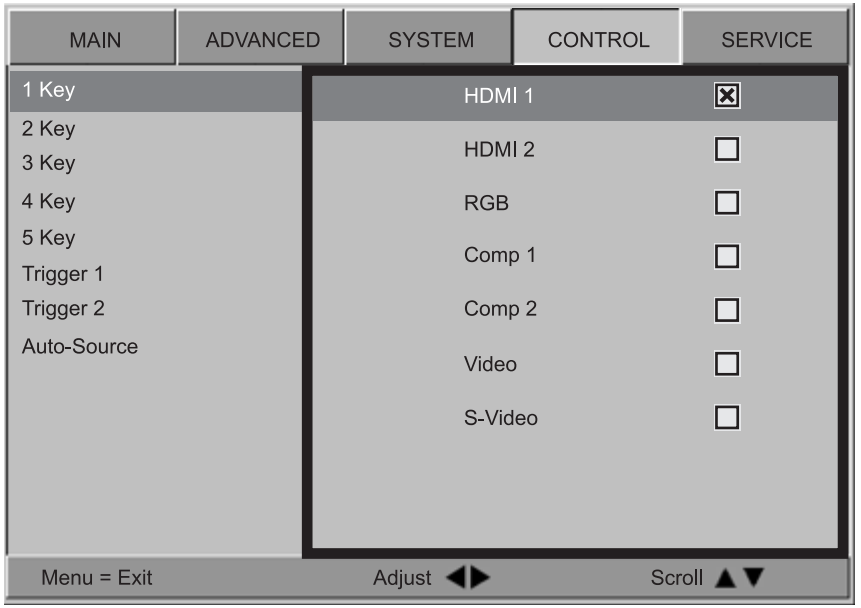
Keys 1 to 5

The **1** to **5** number keys on the remote control can each be programmed to switch to one of the seven input sources.

1. Use the **UP** and **DOWN** arrow buttons to highlight a key, then press **ENTER/SELECT** to open the **Key** submenu.



2. Use the **UP** and **DOWN** arrow buttons to highlight an input.
3. Press **ENTER/SELECT** to select the highlighted input.
4. To return to the **Control** menu, press **MENU**.



Notes

If a source has been disabled in the **System** *menu, a key programmed with that source will have no effect.*

Trigger 1 and Trigger 2

The **Trigger 1** and **Trigger 2** outputs are interchangeable:

Screen trigger	can be connected to an electrically operated screen, automatically deploying the screen when the projector starts up, and retracting the screen when the projector shuts down.
Aspect Ratio trigger	can be used to control screen shuttering for different aspect ratios.

For each Trigger setting, use the **LEFT** and **RIGHT** arrow buttons to select from:

Screen	trigger occurs when the projector is in RUNNING mode.
16:9	trigger occurs when 16:9 aspect ratio is selected.
Theaterscope	trigger occurs when Theaterscope aspect ratio is selected.
4:3	trigger occurs when 4:3 aspect ratio is selected.
4:3 Narrow	trigger occurs when 4:3 Narrow aspect ratio is selected
RS232	trigger output follows the **On** or **Off** setting specified in a **trig.1** or **trig.2** command received from a PC via the RS232 serial input.

Auto Source

Use the **LEFT** and **RIGHT** arrow buttons to select from:

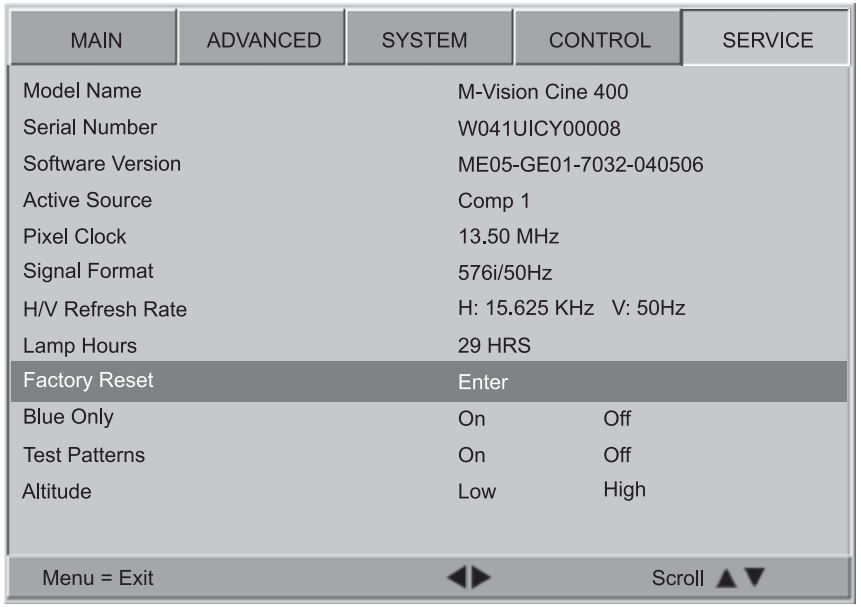
On	The projector searches for an alternative input source when the current input is disconnected.
Off	The projector shows a “blank” screen when the current input is disconnected.

Notes

To set what a ‘blank’ screen looks like, use the **Blank Screen** *setting in the* **System** *menu.*

Service menu

The first eight items are for information only, and cannot be changed.



Factory Reset

1. Press **ENTER/SELECT** to initiate a factory reset.

2. When the confirmation dialog appears, use the **LEFT** and **RIGHT** arrow buttons to confirm or cancel your choice, then press **ENTER/SELECT**.

Notes

Factory Reset will restore all settings to factory defaults.

If you are not sure this is what you want to do, then either:

- **make a record of all settings first**

or

- **select No at the confirmation dialog.**

Blue Only

This is useful for color-calibrating the projector or other video components.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

On Only the blue signal is displayed; green and red are turned off.

Off All three signals - red, green and blue - are displayed.

Test Patterns

Use the **LEFT** and **RIGHT** arrow buttons to select from:

- **Test Pattern Off**
- **White**
- **Black**
- **Red**
- **Green**
- **Blue**
- **Cyan**
- **Magenta**
- **Yellow**
- **Chequerboard**
- **Greyscale**
- **Alignment grid**

To turn the test pattern off, press any other key.

Altitude

For use at high altitudes where the air is thinner, the fan speed can be increased.

Use the **LEFT** and **RIGHT** arrow buttons to select from:

Low normal speed fan

High high speed fan

Notes

If the projector frequently overheats when used in a high altitude environment, then it may help to set **Altitude** *to* **High**.

In most cases, the **Low** *setting should be satisfactory.*

Menu Map

Menu	*Sub-menus and settings*
MAIN	
	Aspect Ratio *16:9, TheaterScope, 4:3, 4:3 Narrow, Native*
	Presets
	Recall *A, B, C, D, Default*
	Save *A, B, C, D*
	Brightness *value between 0 and 200 (100)*
	Contrast *value between 0 and 200 (100)*
	Saturation *value between 0 and 200 (100)*
	Hue *value between 0 and 200 (100)*
	Sharpness *value between 0 and 200 (0)*
	Noise Reduction *value between 0 and 200 (100)*
	Overscan *Off, Crop, Zoom*
	Input Select *HDMI 1, HDMI 2, RGB, COMP 1, COMP 2, VIDEO, S-VISEO*
	Resync

Notes

The underlined text represents the factory default value for each setting.

The default value of a slider is given in brackets next to the setting.

Menu	*Sub-menus and settings*
ADVANCED	
	Color Space *Auto, YPbPr, YCbCr, RGB-PC, RGB-Video*
	Video Standard *Auto, NTSC, PAL, SECAM*
	Gamma *CRT, Film, Video, Punch, Graphics*
	Color Temperature *5500K, 6500K, 7500K, 9300K, Native*
	Color Gamut *Auto, REC709, SMPTE-C, EBU, Native*
	BrilliantColor *On, Off*
	Adaptive Contrast *On, Off*
	RGB Adjust
	Red Offset *value between 0 and 200 (100)*
	Blue Offset *value between 0 and 200 (100)*
	Green Offset *value between 0 and 200 (100)*
	Red Gain *value between 0 and 200 (100)*
	Blue Gain *value between 0 and 200 (100)*
	Green Gain *value between 0 and 200 (100)*
	Fine Sync
	V Position *value between 0 and 200 (100)*
	H Position *value between 0 and 200 (100)*
	Phase *value between 0 and 200 (100)*
	Tracking *value between 0 and 200 (100)*
	Sync Level *value between 0 and 200 (100)*
	Color Mode *Mode 1, Mode 2, Mode 3*

Notes

The underlined text represents the factory default value for each setting.

Menu	*Sub-menus and settings*
SYSTEM	
	Language *English*
	Source Enable
	HDMI 1 *On, Off*
	HDMI 2 *On, Off*
	RGB *On, Off*
	Comp 1 *On, Off*
	Comp 2 *On, Off*
	Video *On, Off*
	S-Video *On, Off*
	Menu Position *Left-Upper, Right-Upper, Left-Bottom, Right-Bottom, Center*
	Blank Screen *Splash, Black, Blue, White*
	Auto Power On *On, Off*
	Auto Power On *On, Off*
	Rear Projection *On, Off*
	Ceiling Mode *On, Off*
	Logo Display *Off, On*

Notes

The underlined text represents the factory default value for each setting.

Menu	*Sub-menus and settings*
CONTROL	
	1 Key
	HDMI 1, HDMI 2, RGB, Comp 1, Comp 2, Video, S-Video
	2 Key
	HDMI 1, HDMI 2, RGB, Comp 1, Comp 2, Video, S-Video
	3 Key
	HDMI 1, HDMI 2, RGB, Comp 1, Comp 2, Video, S-Video
	4 Key
	HDMI 1, HDMI 2, RGB, Comp 1, Comp 2, Video, S-Video
	5 Key
	HDMI 1, HDMI 2, RGB, Comp 1, Comp 2, Video, S-Video
	Trigger 1 *Screen, 16:9, Theaterscope, 4:3, 4:3 Narrow, RS232*
	Trigger 2 *Screen, 16:9, Theaterscope, 4:3, 4:3 Narrow, RS232*
	Auto-Source *Off, On*
SERVICE	
	Information *Model Name, Serial Number, Software Version, Active Source, Pixel Clock, Signal Format, H/V Refresh Rate, Lamp Hours*
	Factory Reset (*Projector will ask for confirmation before restoring factory default settings.)*
	Test Patterns *Off, White, Black, Red, Green, Blue, Cyan, Magenta, Yellow, Chequerboard, Greyscale, Alignment Grid*
	Altitude *Low, High*

Notes

The underlined text represents the factory default value for each setting.

DIGITAL PROJECTION

REMOTE COMMUNICATIONS GUIDE

M-Vision Cine 320 Series

High Brightness Digital Video Projector
16:9 widescreen display

Rev D July 2014

IN THIS GUIDE

Introduction

The projector can be controlled by using an external control system or a PC via an RS232 interface, using a terminal-emulation program, such as HyperTerminal.

Serial Port setup

- Baud rate 38,400 bps
- Data length 8 bits
- Stop bits one
- Parity none
- Flow control none

Notes

See how to connect to the projector using the RS232 input in the ***Connection Guide****.*

Remote commands

There are two types of commands, ***key commands*** and ***operation commands***.

All commands consist of ASCII text strings, starting with two letters: '**ky**' for key commands and '**op**' for operation commands. All commands end with an ASCII Carriage Return character↵ (code 13).

Key commands

Key commands are used to simulate remote control key presses and use the following format:

- **ky <keyname>**↵

Example

- **ky pow.on** ↵ simulates the **POWER ON** key being pressed.

Operation commands

Operation commands are used to simulate menu operations and determine the settings of the projector, and use the following format:

- **op <operation> <command>**↵
- The <operation> string determines which setting the command will affect. For example, "aspect" stands for aspect ratio.
- The <command> string can take one of the following formats:

Command	<command>	Description
Set	= <value>	Makes the setting take that value.
Get	?	Asks what the current value is. The value is returned as an ASCII text string.
Increment	+	Adds 1 to the current value.
Decrement	–	Subtracts 1 from the current value.
Execute	(none)	Performs an action.

Examples

op aspect = 1 [CR]	sets the aspect ratio to TheaterScope.
op aspect ? [CR]	asks what is the current aspect ratio.
op bright + [CR]	increments the brightness setting.
op contrast – [CR]	decrements the contrast setting.
op resync [CR]	commands the projector to attempt to re-synchronise to the current input source.

Notes

*See how to connect to the projector using the RS232 input in the **Connection Guide**.*

Spaces in commands are necessary, therefore:

- `ky pow.on`↵ *is **correct**;*
- `kypow.on`↵ *is **incorrect**.*
- `op aspect = 1`↵ *is **correct**;*
- `opaspect=1`↵ *is **incorrect**.*

Command Guide

Key commands

Code transmitted	<keyname>		Description
0x01	pow.on	I	Turn power on.
0x09	pow.off	⏻	Turn power off.
0x15	menu	MENU	Bring up or cancel menu display.
0x17	enter	ENTER	Keypad enter.
0x18	cur.down	▼	Keypad down arrow.
0x1A	cur.up	▲	Keypad up arrow.
0x1D	cur.left	◀	Keypad left arrow.
0x1F	cur.righ	▶	Keypad right arrow.
0x80	bright	☼	Bring up or cancel brightness slide bar.
0x81	contrast	◐	Bring up or cancel contrast slide bar.
0x82	sharp	SHARP	Bring up or cancel sharpness slide bar.
0x83	nr	NR	Bring up or cancel noise reduction slide bar.
0x85	gam.sw	GAMMA	Switch to the next gamma value.
0x8B	src.1	1	Switch the active source to source 1.
0x8C	src.2	2	Switch the active source to source 2.

Notes

Code transmitted	<keyname>		Description
0x8D	src.3	3	Switch the active source to source 3.
0x8E	src.4	5	Switch the active source to source 4.
0x8F	src.5	5	Switch the active source to source 5.
0x93	osc.sw	O-SCAN	Switch to the next Overscan mode.
0x98	mem.1	A	Recall user memory associated with the User Memory A key.
0x99	mem.2	B	Recall user memory associated with the User Memory B key.
0x9A	mem.3	C	Recall user memory associated with the User Memory C key.
0x9D	asp.sw	ASPECT RATIO	Switch to the next aspect ratio setting.
0xA3	bcolor.sw	BRI-C	Switch Brilliant Color on or off. (Cine 260 and 400 only)
0xAA	ctemp.sw	C-TEMP	Switch to the next colour temperature value.
0xAD	pattern.sw	TEST	Switch to the next test pattern.

Notes

Operation commands

Operation	<command>	Values	Notes
aspect	= ?	0 = 16:9 1 = Theaterscope 2 = 4:3 3 = 4:3 Narrow 4 = Native	
memory	= ?	0 = Preset A 1 = Preset B 2 = Preset C 3 = Preset D 4 = Default	
save.mem	=	0 = Preset A 1 = Preset B 2 = Preset C 3 = Preset D	
bright	= ? + -	0 - 200	
contrast	= ? + -	0 - 200	
saturat	= ? + -	0 - 200	
tint	= ? + -	0 - 200	
sharp	= ? + -	0 - 200	
noise.thresh	= ? + -	0 - 200	
nr.simple	= ? + -	0 - 200	
nr.mode	= ?	0 = Simple 1 = Advanced	
nr.general	= ? + -	0 - 200	
block.reduct	= ? + -	0 - 200	
mosq.noise	= ? + -	0 - 200	
overscan	= ?	0 = Off 1 = Crop 2 = Zoom	

Notes

Operation	<command>	Values	Notes
source.sel	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB 3 = YPrPb 1 4 = YPrPb 2 5 = S-Video 6 = Video	
resync	(execute)		
color.space	= ?	0 = Auto 1 = YPbPr (= REC709) 2 = YCbCr (= REC601) 3 = RGB-PC 4 = RGB-Video	
video.stand	= ?	0 = Auto 1 = NTSC 2 = PAL 3 = SECAM	
gamma	= ?	0 = CRT 1 = Film 2 = Video 3 = Punch 4 = Graphics	
color.temp	= ?	0 = 5500K 1 = 6500K 2 = 7500K 3 = 9300K	
dlp.frame	= ?	0 = Auto 2 = 48 Hz 3 = 50 Hz 4 = 60 Hz	
color.gamut	= ?	0 = Auto 1 = REC709 2 = SMPTE C 3 = EBU 4 = Native	
bcolor	= ?	0 = Off 1 = On	
red.off	= ? + -	0-200	

Notes

Operation	<command>	Values	Notes
green.off	= ? + -	0-200	
blue.off	= ? + -	0-200	
red.gain	= ? + -	0-200	
green.gain	= ? + -	0-200	
blue.gain	= ? + -	0-200	
vert.pos	= ? + -	0-200	
horiz.pos	= ? + -	0-200	
phase	= ? + -	0-200	
tracking	= ? + -	0-200	
sync.level	= ? + -	0-200	
menu.pos	= ?	0 = Top left 1 = Top right 2 = Bottom left 3 = Bottom right 4 = Centre	
blank.screen	= ?	0 = Black 1 = Blue 2 = White 3 = Logo	
auto.pow.off	= ?	0 = Off 1 = On	
auto.pow.on	= ?	0 = Off 1 = On	
rear.proj	= ?	0 = Off 1 = On	
ceil.mode	= ?	0 = Off 1 = On	
logo.disp	= ?	0 = Off 1 = On	

Notes

Operation	<command>	Values	Notes
trig.1	= ?	0 = Screen 1 = 16:9 2 = Theaterscope 3 = 4:3 4 = 4:3 Narrow 5 = RS232 6 = On 7 = Off	0: Trigger occurs when the projector is in RUNNING mode
trig.2	= ?	0 = Screen 1 = 16:9 2 = Theaterscope 3 = 4:3 4 = 4:3 Narrow 5 = RS232 6 = On 7 = Off	0: Trigger occurs when the projector is in RUNNING mode
auto.source	= ?	0 = Off 1 = On	
model.name	?	<string>	
ser.number	?	<string>	
soft.version	?	<string>	
act.source	?	0 = HDMI 1 1 = HDMI 2 2 = RGB 3 = YPrPb 1 4 = YPrPb 2 5 = S-video 6 = Video	
h.refresh	?	<number>	KHz
v.refresh	?	<number>	Hz
pixel.clock	?	<number>	MHz
signal	?	<string>	
lamp.hours	?	<number>	
total.hours	?	<number>	
environment	?	<string>	Temperatures
fact.reset	(execute)		

Notes

Operation	<command>	Values	Notes
blue.only	=	0 = Off 1 = On	
pattern	=	0 = White 1 = Black 2 = Red 3 = Green 4 = Blue 5 = Cyan 6 = Magenta 7 = Yellow 8 = Chequerboard 9 = Greyscale 10 = Alignment Grid 11 = Off	
altitude	= ?	0 = Low 1 = High	
status.check	?	0 = standby mode 1 = warm up mode 2 = running mode 3 = cooling mode 4 = error	

Notes